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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,822	10/24/2001	Hakan Ates Gurcan	M-12141 US	1052

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EXAMINER

THOMAS, BRANDI N

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 03/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,822

Applicant(s)

GURCAN, HAKAN ATEŞ

Examiner

Brandi N Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 57-64 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 65-75 is/are allowed.
- 6) ☒ Claim(s) 57, 58 and 60-64 is/are rejected.
- 7) ☒ Claim(s) 59 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: Detailed Action.

DETAILED ACTION

Information Disclosure Statement

1. Acknowledgement is made of receipt of Information Disclosure Statement(s) (PTO-1449) filed 7/5/01. An initialed copy is attached to this Office Action.

Election/Restrictions

2. Applicant's election of 57-75 in Paper No. 4 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 57-58 and 60-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaverick et al. (US 2002/0101769 A1).

Regarding claim 57, Garverick et al. discloses a method for operating a driver circuit electrostatically driving a MEMS structure, comprising: a first and second voltage which can be coupled to a drive electrode that electrostatically drives the MEMS structure (section 0015 and 0016) but does not specifically state generating a first output current in response to a first digital

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control word and integrating the first output current to increase or decrease a first voltage by an amount and in a direction controlled by the first digital control word. It is obvious to generate a first output current, which is the output, in response to a first digital control word, which is the input, and integrating the first output current to increase or decrease a first voltage by an amount and in a direction controlled by the first digital control word this being reasonably based upon it is well known in the art of digital controllers.

Regarding claim 58, Garverick et al. discloses the driver circuit (146) fits within a footprint of the MEMS structure (142, tiltable mirrors are fabricated as a MEMS structure) to be driven by the driver circuit (section 0015 and figure 3).

Regarding claim 60, Garverick et al. discloses that the MEMS structure is a micromirror (140) (section 0039 and figure 3).

Regarding claim 61, it is inherent wherein the first digital control word further includes a bit representing an integration duration and said generating the first output current comprises generating the first output current for the integration duration this being reasonably based upon digital controllers use bits and words to control all inputs and outputs.

Regarding claim 62, it is inherent wherein the first digital control word further includes a bit representing an integration direction and said generating the first output current comprises generating the first output current for the integration direction this being reasonably based upon digital controllers use bits and words to control all inputs and outputs.

Regarding claim 63, it is inherent wherein the first digital control word further includes one or more bits representing an integration current level and said generating the first output current further comprises generating the first output current at the integration current level this

being reasonably based upon digital controllers use bits and words to control all inputs and outputs.

Regarding claim 64, Garverick et al. discloses a method for operating a driver circuit electrostatically driving a MEMS structure, comprising: a third voltage which can be coupled to a drive electrode (section 0017) but does not specifically state generating a second output current, which is the output, in response to a second digital control word, which is the input, and integrating the second output current to increase or decrease a second voltage by an amount and in a direction controlled by the second digital control word. It is obvious to generate a second output current in response to a second digital control word and integrating the second output current to increase or decrease a second voltage by an amount and in a direction controlled by the second digital control word this being reasonably based upon it is well known in the art of digital controllers.

Allowable Subject Matter

5. Claim 59 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 65-75 are allowed.

7. The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the claim(s), in such a manner that a rejection under 35 U.S.C. 102 or 103 would be proper. The prior art fails to teach a combination of all the claimed features as presented in claim(s) 59 and 65-75, wherein the claimed invention comprises a footprint of 1.2

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by 1.2 mm^2 , a first digital word representing a change to a first voltage across an integrate-and-hold capacitor; a first digital word, generating a first reference current in the first integration direction, at a level scaled relative to the first integration current level, and for the integration duration; and supplying the first output current to the integrate-and-hold capacitor, wherein a second voltage develops across the integrate-and-hold capacitor and can be coupled to a drive electrode, as claimed. The combination of all the claimed features are not anticipated or made obvious by the prior art.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Wong et al. (6529654 B1) discloses a method for operating and controlling movement of a micro-mirror structure coupled to a pair of torsion bars in a transparent manner.

Xu et al. (6441449 B1) discloses a high quality variable capacitor fabricated using micro electro-mechanical systems technology.

Chan et al. (6504641 B2) discloses a driver for use with a micro electro-mechanical systems device and the method and operation thereof.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brandi N Thomas whose telephone number is 703-308-3095.

The examiner can normally be reached on 7-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 703-308-4883. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7724 for regular communications and 703-308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-4883.

BNT

BNT
March 10, 2003


-RICKY MACK
PRIMARY EXAMINER